CHAPTER 4: FIRST PAPER FEED SECTION

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1. Theory of Operation

1. Paper Feed Tray Elevation (Up / Down)

1. Paper Detection Sensor

- The Paper detection sensor checks for the presence of paper on the Paper feed tray.
- The Paper feed tray elevates only when the sensor is detecting the papers.
- The Paper feed tray descends when the sensor no longer detects paper on the tray.

2. Upper Limit Sensor

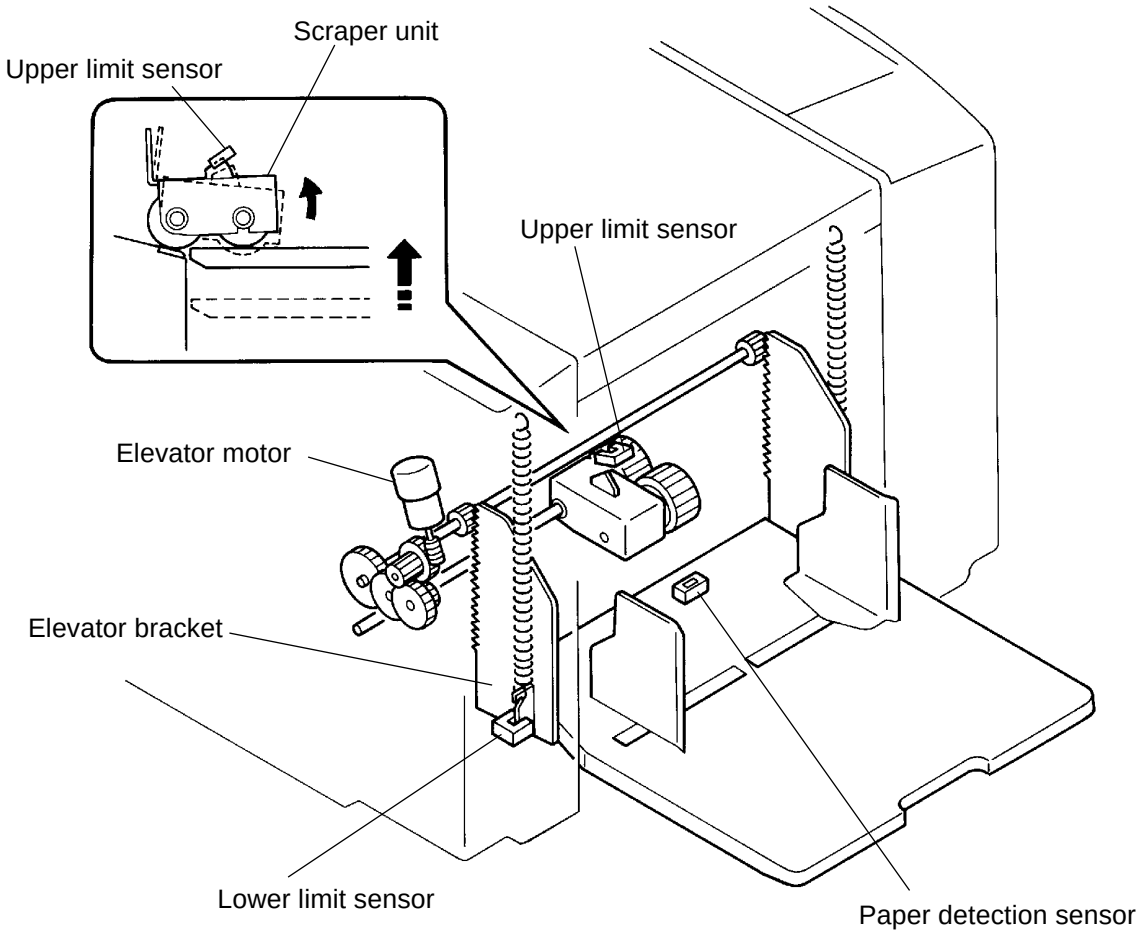
- When the print START button is pressed, the Elevator motor is activated and elevates the Paper feed tray until the light path of the Elevator upper limit sensor is blocked by an actuator plate on the Scraper unit.
- The Elevator motor is activated every time the sensor is unblocked to elevate the Paper feed tray during printing to keep the sensor blocked.

3. Lower Limit Sensor

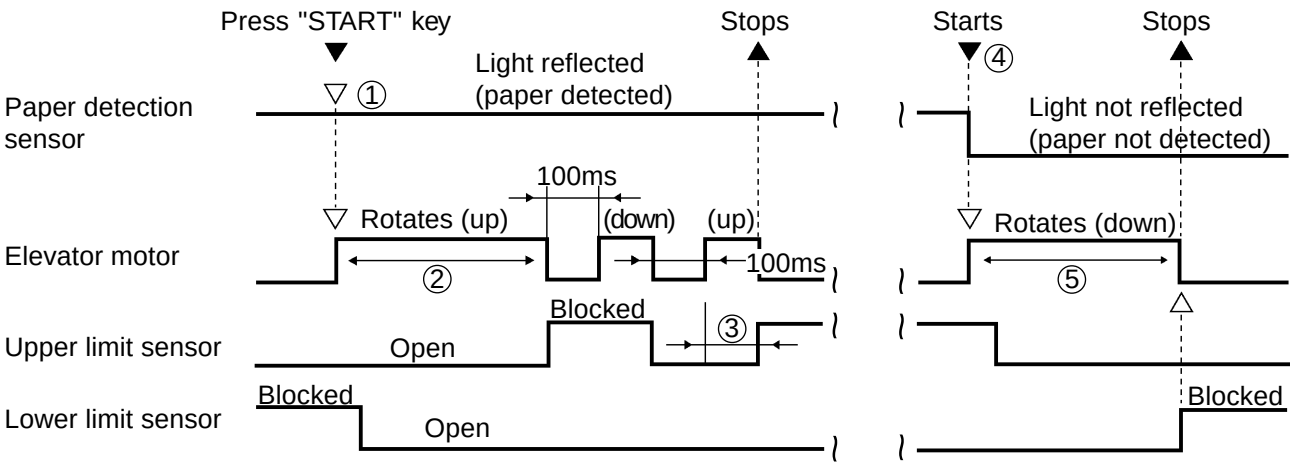
- When the Paper detection sensor no longer detects paper on the tray, the Paper feed tray comes all the way down until the light path of the Elevator lower limit sensor is blocked by an actuator plate on the Elevator bracket.

4. Feed-tray Down Button

- Pressing the Feed-tray down button, while the machine is in stand by, lowers the Paper feed tray the duration the button is pressed.



Paper Feed Tray Elevation (Up / Down) Timing Chart



① Add paper message **[C 44]** is displayed if the Paper detection sensor does not detect paper on the Paper feed tray (sensor light not reflected).

② If the light path of the Upper limit sensor is not blocked within **10 seconds** after the Elevator motor is activated, the machine assume that the Elevator motor has locked and displays error message **[E 02]**.

③ If the light path of the Upper limit sensor is not blocked within **2 seconds** after the Elevator motor is activated, the machine assumes that the Elevator motor has locked and displays error message **[E 02]**. (Only at the last elevation movement in initial tray elevation.)

④ During printing if the Paper detection sensor no longer detects paper on the Paper feed tray (sensor light not reflected), add paper message **[C 44]** is displayed and the elevator motor activates to lower the Paper feed tray.

⑤ If the light path of the Lower limit sensor is not blocked within **10 seconds** after the Elevator motor is activated, the machine assumes that the Elevator motor has locked and displays error message **[E 02]**.

- If the light paths of the Upper and Lower limit sensors are blocked both at the same time, the machine assumes that the Elevator motor has locked and displays error message **[E 02]**.
- If over load current is detected for **0.3 seconds** after the Elevator motor is activated, the machine assumes that the Elevator motor has locked and displays error message **[E 02]**.

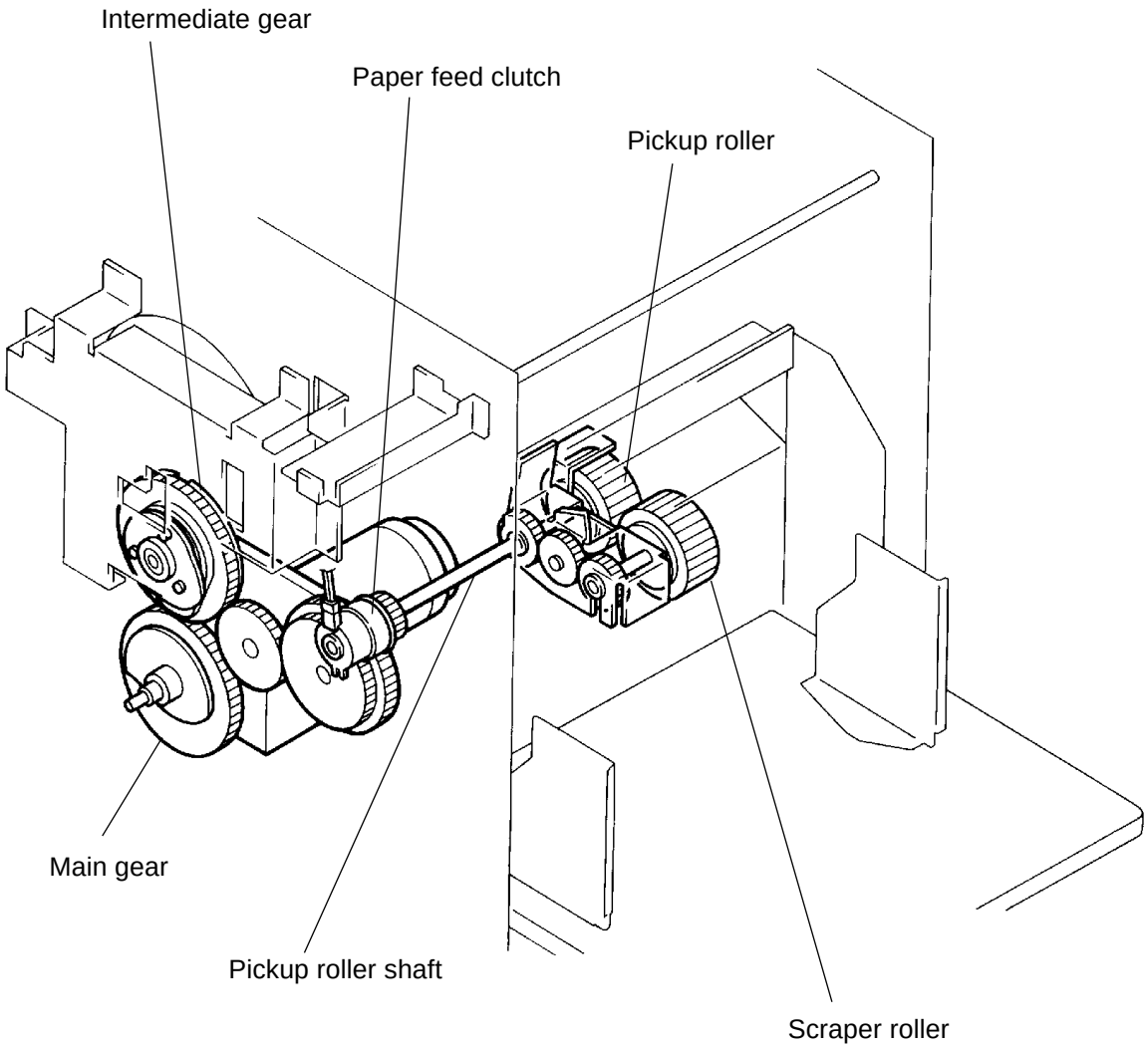
2. First Paper Feed Drive Mechanism

1. Paper Feed Clutch

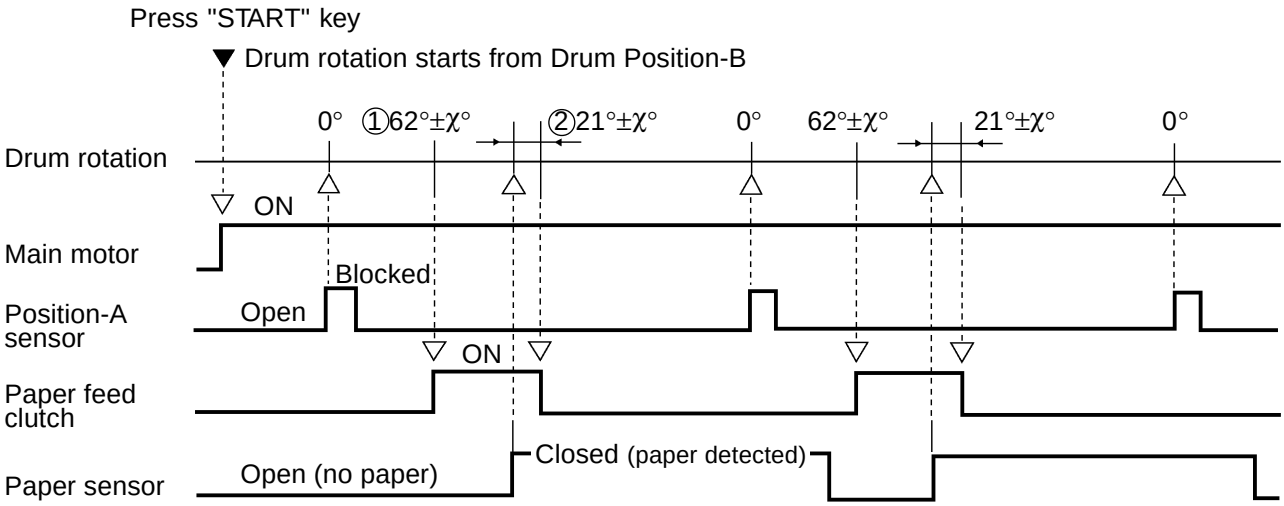
- When the Main motor activates, the Drum rotates in the clockwise direction (looking from back of the machine).
- The Paper feed clutch activates at a certain Drum angle from the Position-A. This Drum angle is determined by the count signal from the motor encoder sensor.
- The clutch is released as the Drum rotates for a certain set degrees after the Paper sensor detects incoming paper.

2. End of First Paper Feed

- The First paper feed ends when the Paper feed clutch is released.
- The leading edge of the paper rests against the Guide roller and Timing roller.
- The Scraper roller and Pickup roller rotates free in the direction of paper feed by one-way clutch to avoid applying brake on the paper when the Second paper feed takes over the paper feed.

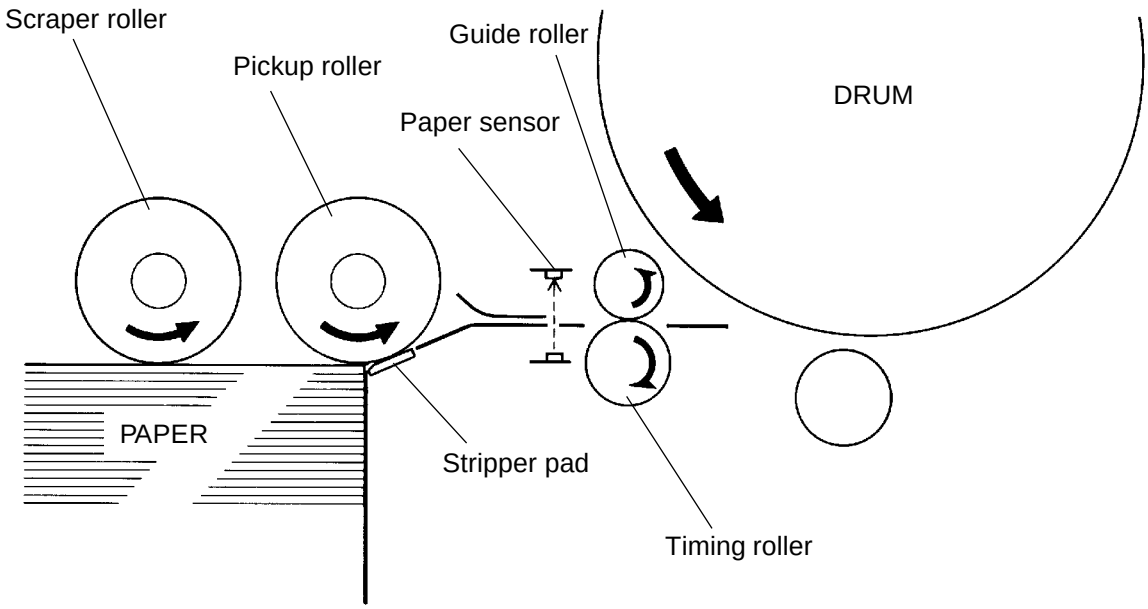


First Paper Feed Timing Chart



① The Paper feed clutch activates each time the Drum rotates 62°±χ° from the 0° position.
The angle "χ" can be adjusted by Memory Switch (Test Mode) **No. 204**, which adjusts the ON timing of the Paper feed clutch.

② The Paper feed clutch is deactivated when the Drum rotates 21°±χ° from the moment the light path of the Paper sensor is blocked (paper detected).
The angle "χ" can be adjusted by Memory Switch (Test Mode) **No. 210**, which adjusts the paper buckle amount.



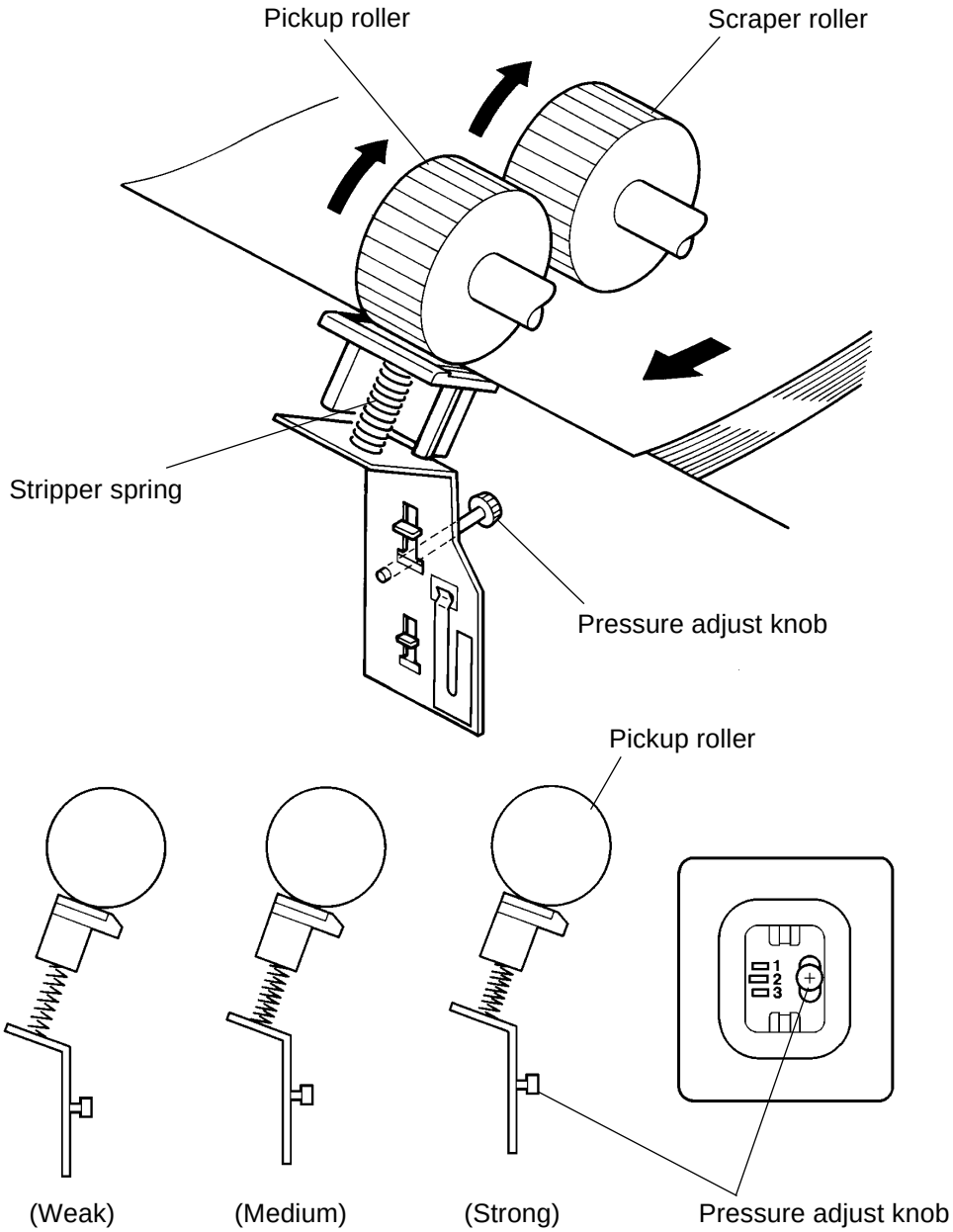
3. Paper Pickup System

1. Feeding

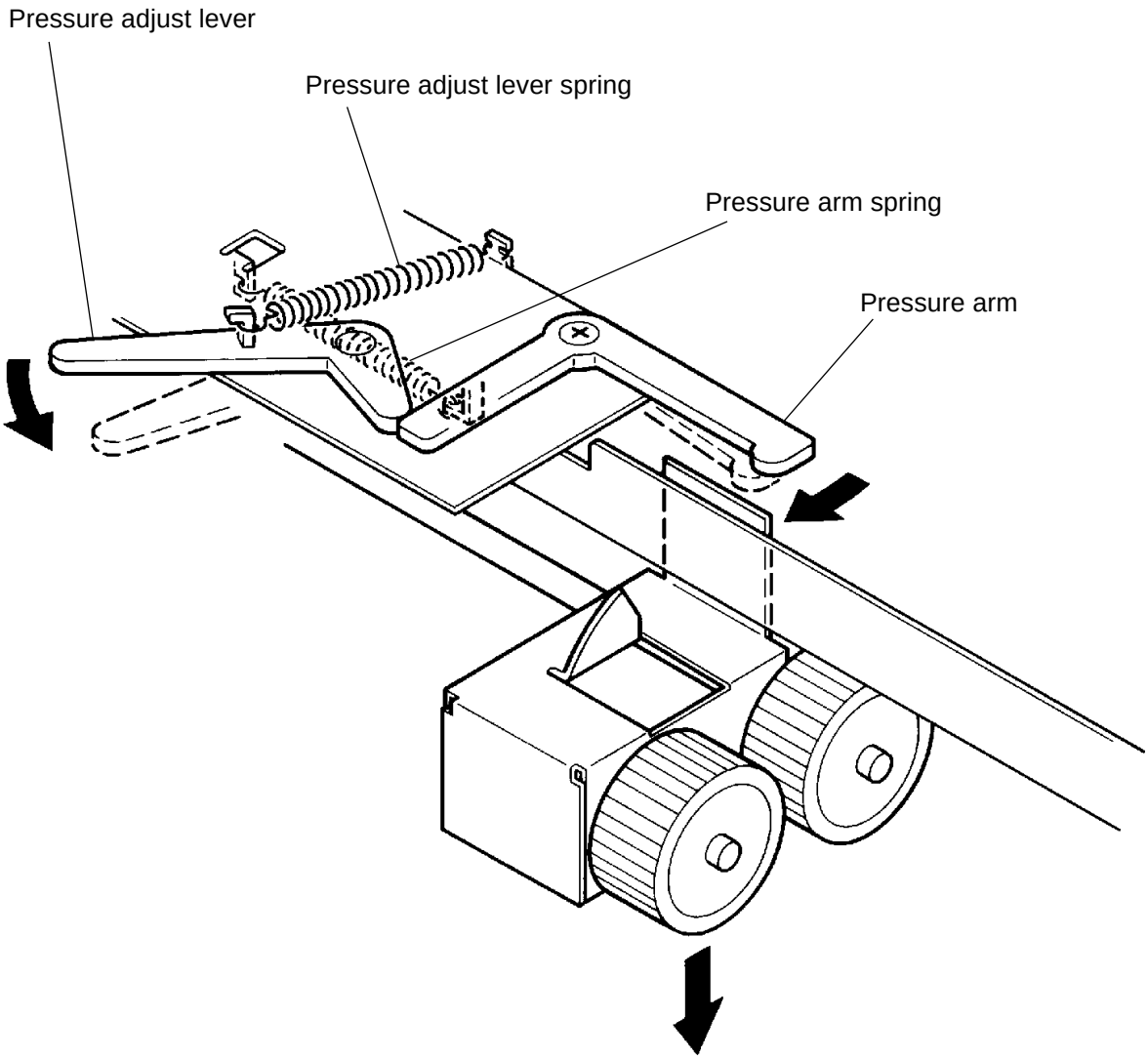
- The papers on the Paper feed tray are fed by the Scraper roller, in several layers, in between the Pickup roller and Stripper plate.

2. Pick-up

- The top sheet is separated from the rest by the Pickup roller and Stripper plate.
- The Stripper plate is pushed against the Pickup roller by the Stripper spring to provide resistance against paper feed, by which only a single sheet of paper is fed from the paper stack.
- The Stripper unit has Pressure adjust knob which by moving up or down changes the pressure of the Stripper spring in three steps.



4. Paper Feed Pressure Select System

1. Paper Feed Pressure Adjust Lever

- The Paper feed pressure adjust lever is located on the left side of the Scraper unit, and it changes the pressure of the Scraper unit applied against the papers on the Paper feed tray.
- NORMAL position is for less pressure to feed thin papers.
- CARD position is for more pressure to feed thicker papers.
- Move the lever to the left for NORMAL and right for CARD.